

JANUARY 25, 1991

TEST REPORT #91029

CURRENT CARRYING CAPACITY
OF BCS CONNECTORS

SAMTEC CORPORATION



APPROVED BY: DAVID P. SCOPELLITI
ENGINEERING LAB MANAGER
CONTECH RESEARCH, INC.



Contech Research

CERTIFICATION

This is to certify that the evaluation described herein was designed and executed by personnel of Contech Research, Inc. It was performed with the concurrence of Samtec Corporation, who was the test sponsor.

All equipment and measuring instruments used during testing were calibrated and traceable to NIST according to MIL-STD-45662, as applicable.

All data, raw and summarized, analysis and conclusions presented herein are the property of the test sponsor. No copy of this report, in part or in full, shall be forwarded to any agency, customer, etc., by Contech Research without the written approval of the sponsor.



David P. Scopelliti
Engineering Lab Manager

DPS/lo



Contech Research

PROJECT NO.: 91029 SPECIFICATION: N/A

PART NO.: BCS150-L-D-TE PART DESCRIPTION: Electrical Connector
BCS150-L-S-TE

SAMPLE SIZE: 2 Units Total TECHNICIAN: JMG

START DATE: 1/18/91 COMPLETE DATE: 1/21/91

ROOM AMBIENT: 26°C RELATIVE HUMIDITY: 31%

EQUIPMENT ID#: 15, 25, 41, 144

CURRENT CARRYING CAPACITY

PURPOSE:

To establish the current carrying capacity of the test sample under evaluation. This is achieved by determining the temperature rise resulting at the contact interface from different current levels. The temperature rise at a given current level plus the ambient operating temperature should not exceed the temperature rating of the test sample. Thus, the current rating of the system decreases as the operating ambient increases. This data can also be used to determine potential local "hot spots" internal to the test sample, possible degradation factors, thermal effects on adjacent areas and the acceptability for use of pulsing techniques.

PROCEDURE:

1. The test samples were prepared to accept thermocouples at the appropriate locations (contact interface or as close as possible).
2. Sealing compound was used to "block off" any drilled holes in the housing used for this purpose.
3. The thermocouples were attached to a data acquisition system which in turn were interconnected to a plotter.
4. An additional thermocouple was placed 2" outside of the test samples adjacent to the locations to be monitored. This is accomplished to evaluate the impact on ambient conditions.
5. Power leads were appropriately attached to the power supply and test sample.
6. The test specimen was placed in a chamber which prevents air currents and the like, influencing the observations.



PROCEDURE -- Continued:

7. Five contacts were connected in series for this test.
8. The temperature rise was measured and plotted when power was supplied through the test sample.

REQUIREMENTS:

1. The temperature rise shall be measured and recorded.
2. The temperature rise shall be obtained and the current derating curve shall be established.

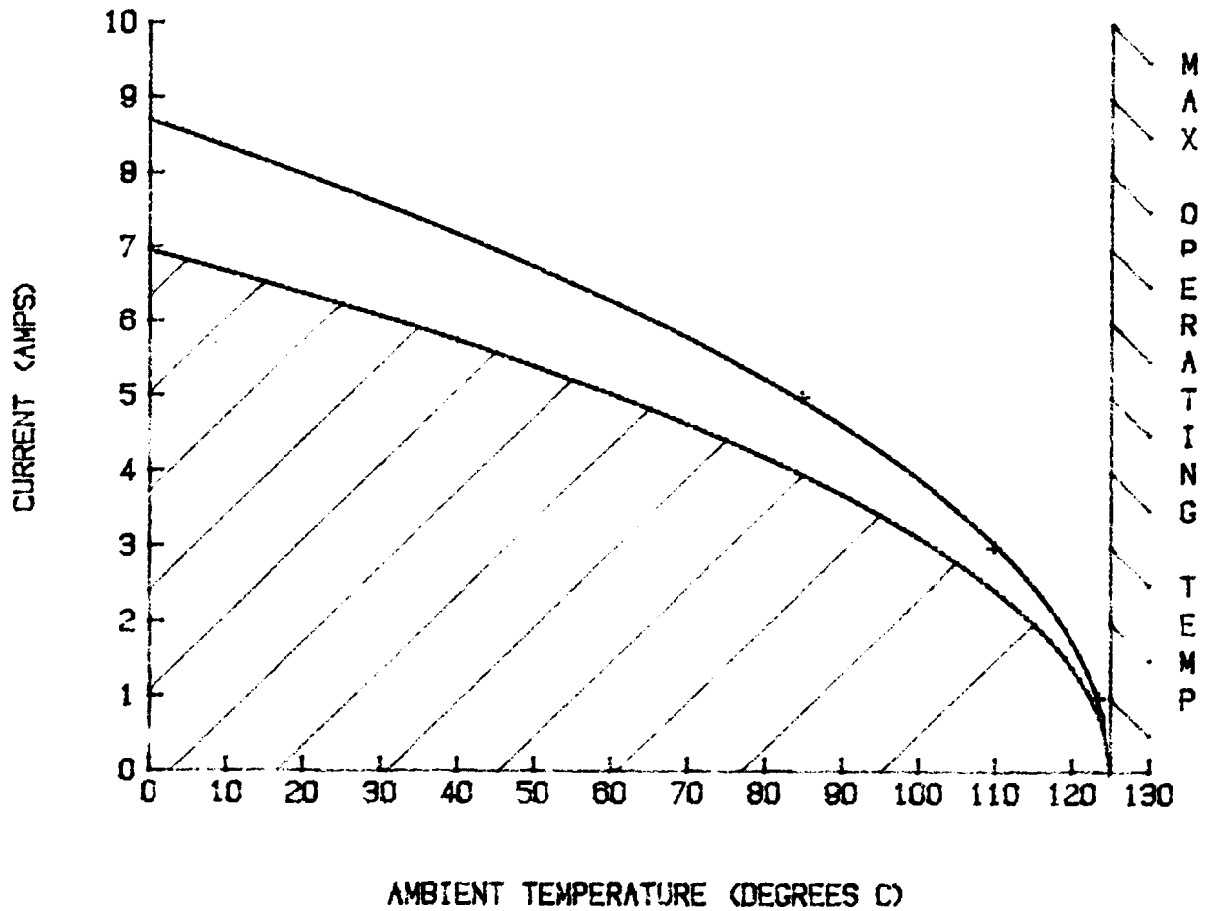
RESULTS:

Figures #1 and #2 is the current derating curve for connectors evaluated with maximum operating temperature of 125°C. The base curve is created by the data from Figures #3 through #8. The derated curve is 20% of the base curve.

CURRENT CARRYING CAPACITY

SAMTEC
BCS150-L-D-TE
RETEST

----- BASE CURVE - - - - - DERATED CURVE //// OPERATING RANGE



SAMTEC
BCS150-6-S-TE RETEST
1 AMP

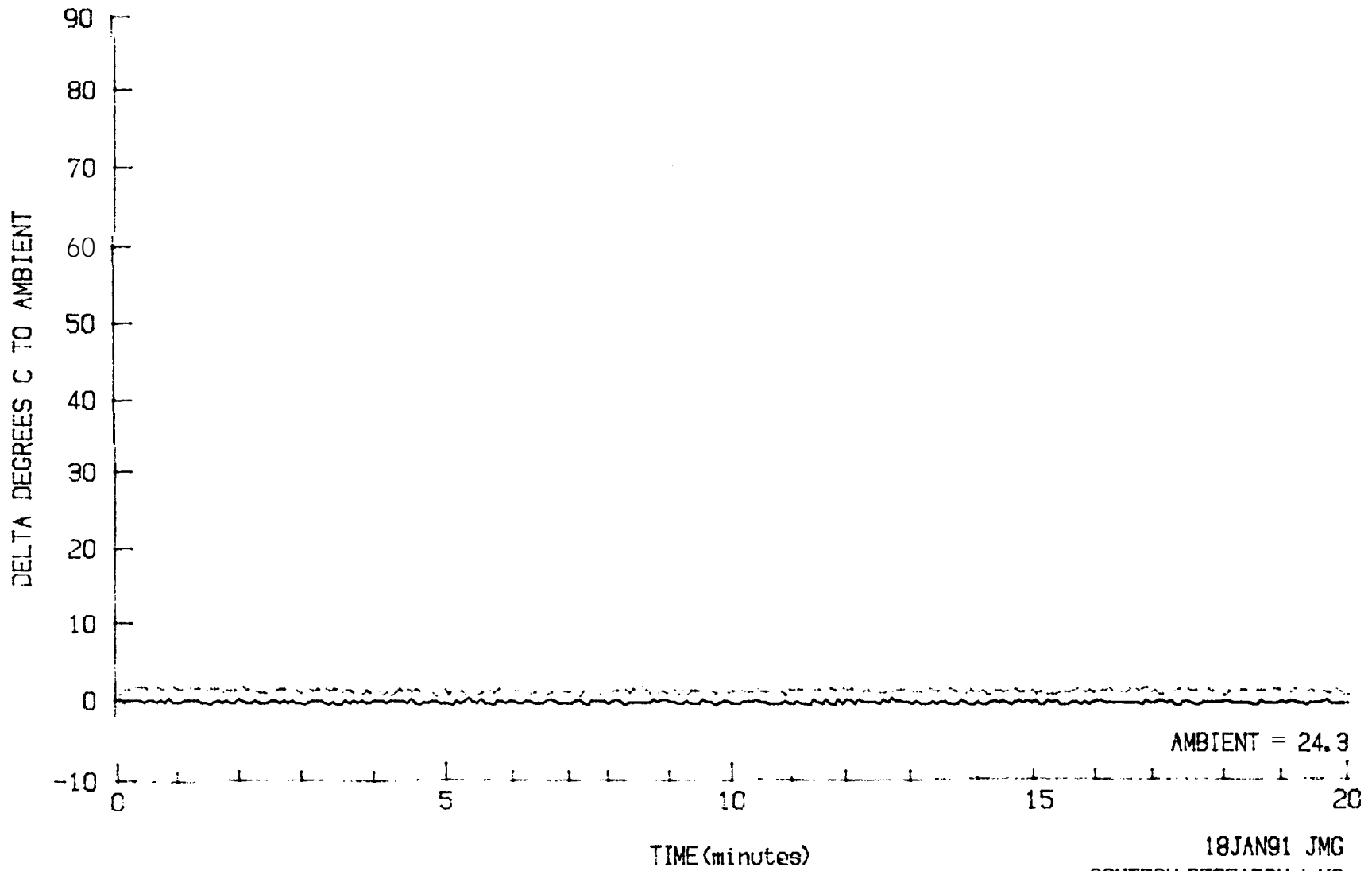


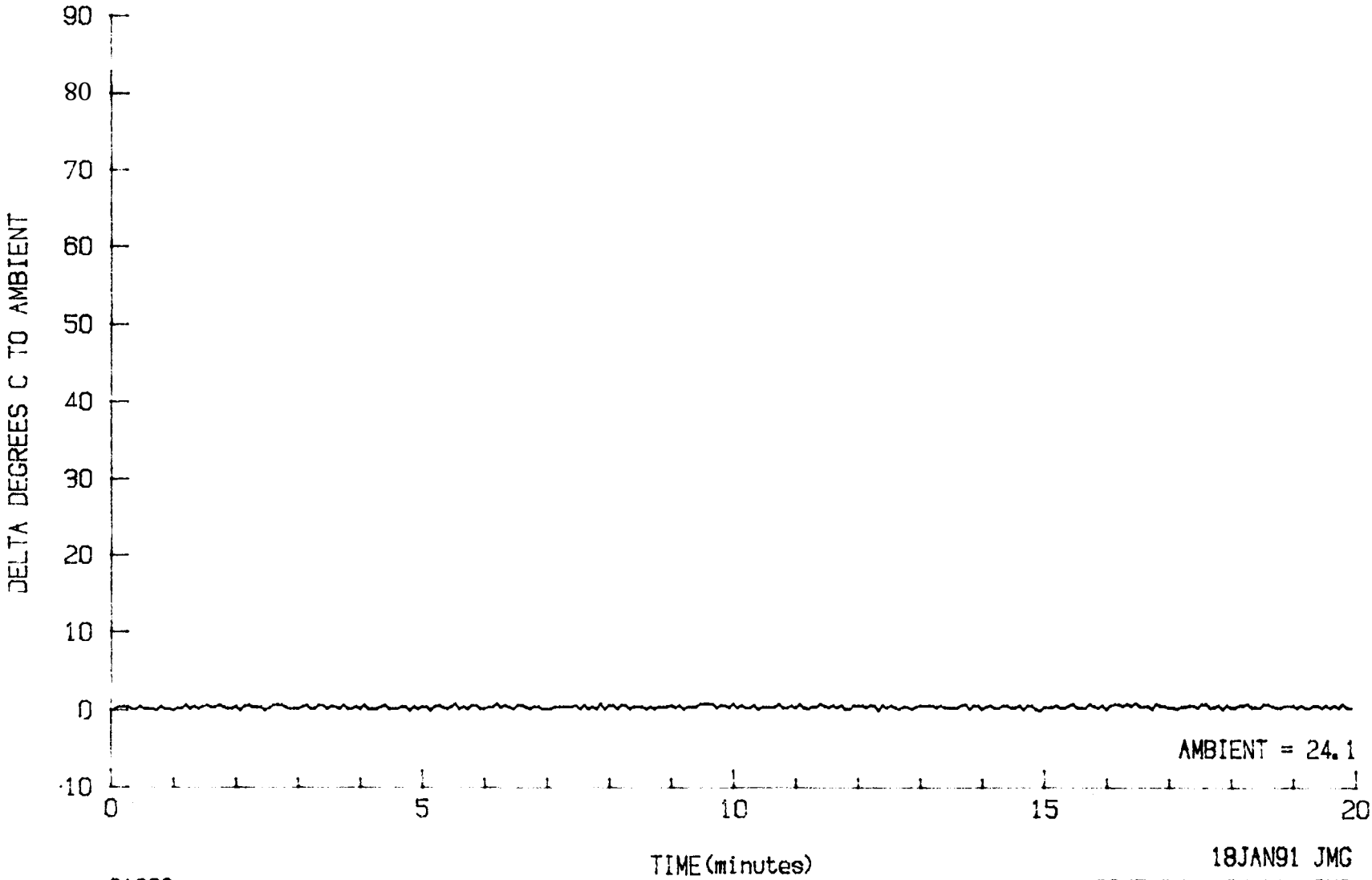
Figure #3

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SAMTEC
BCS1 50-6-S-TE RETEST
3 AMPS

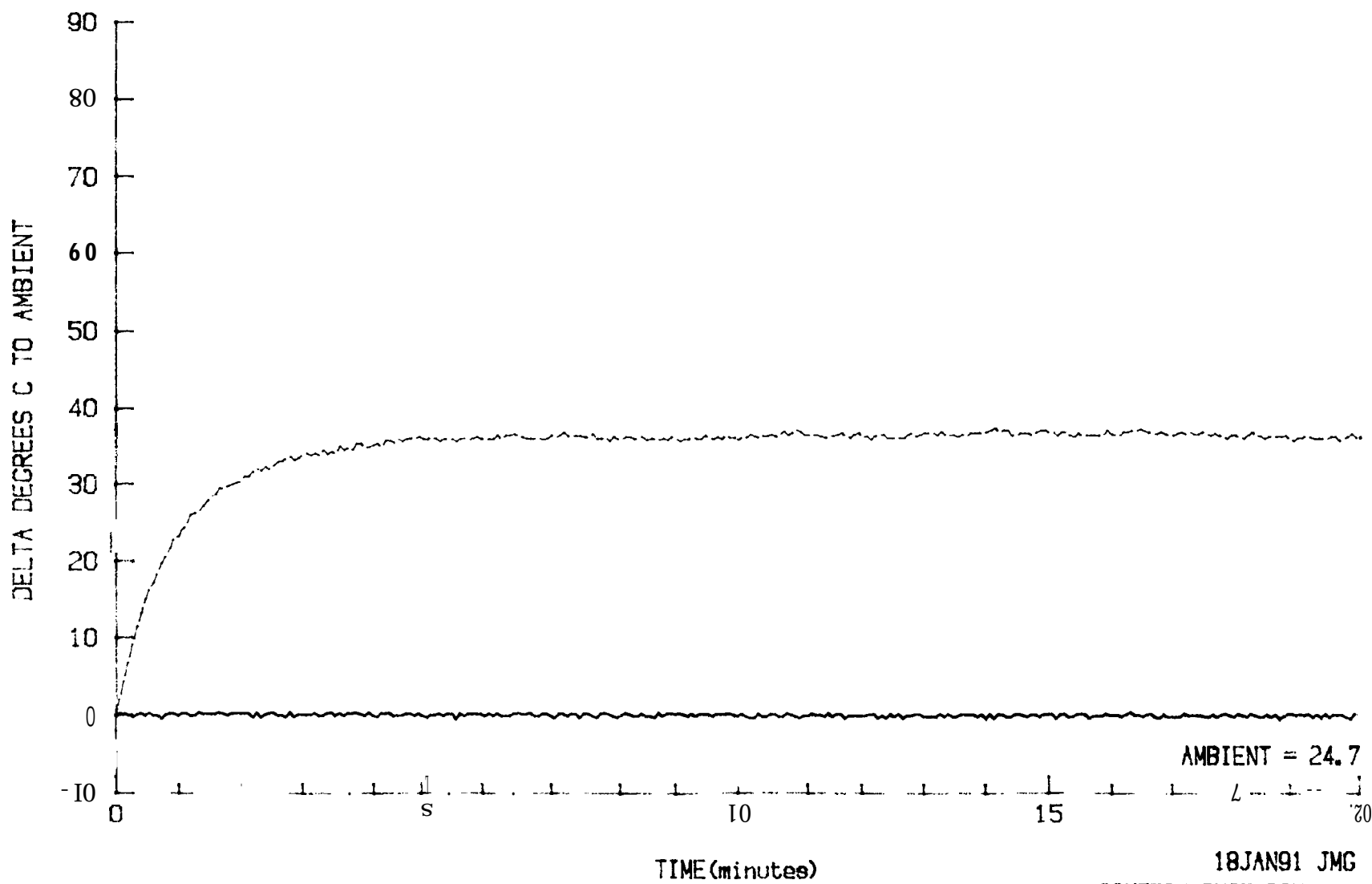


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Figure # 4

SAMTEC
BCS150-6-S-TE RETEST
5 AMPS



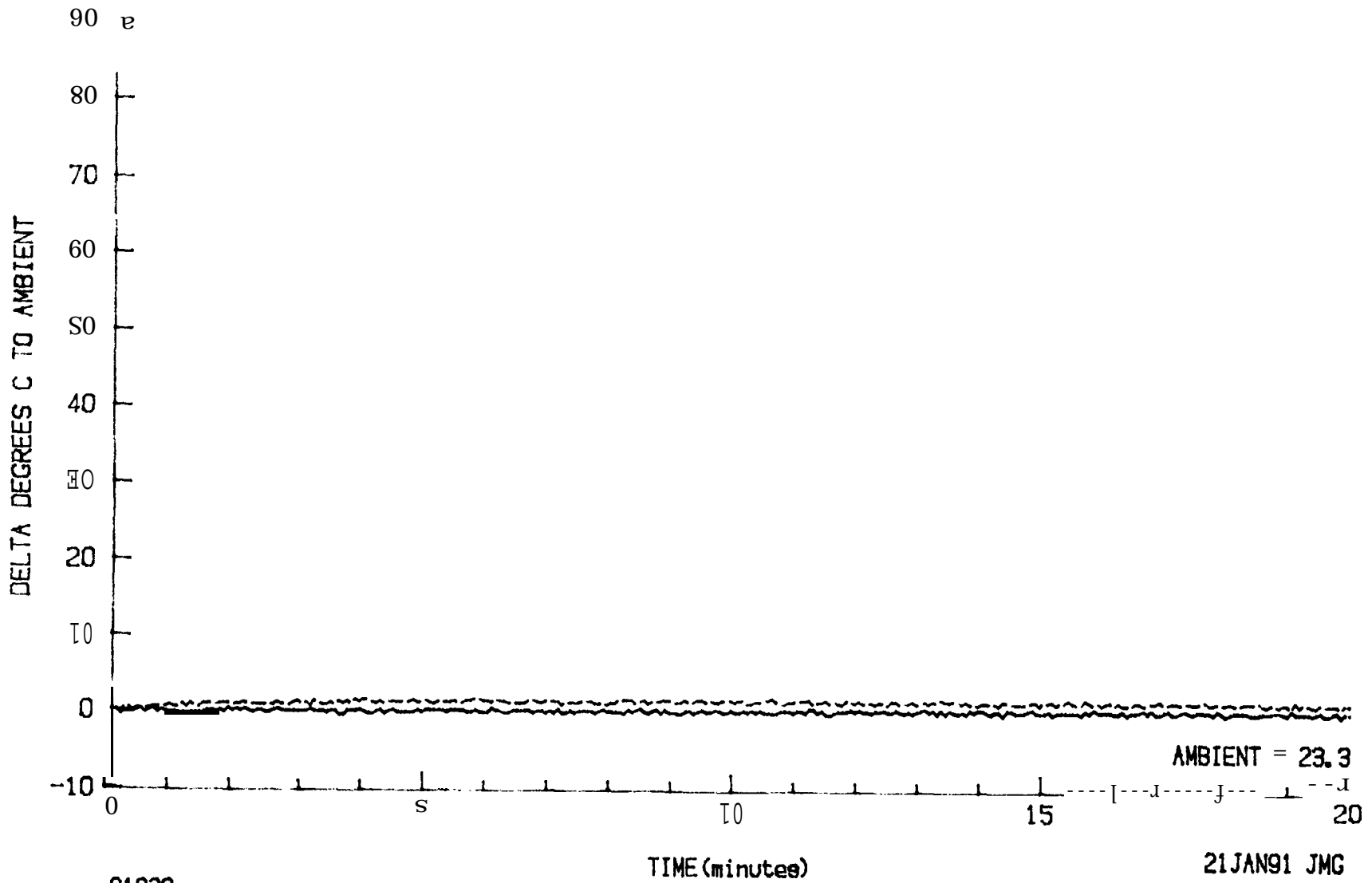
6

Figure #5

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SAMTEC
BCS150-L-D-TE RETEST
I AMP

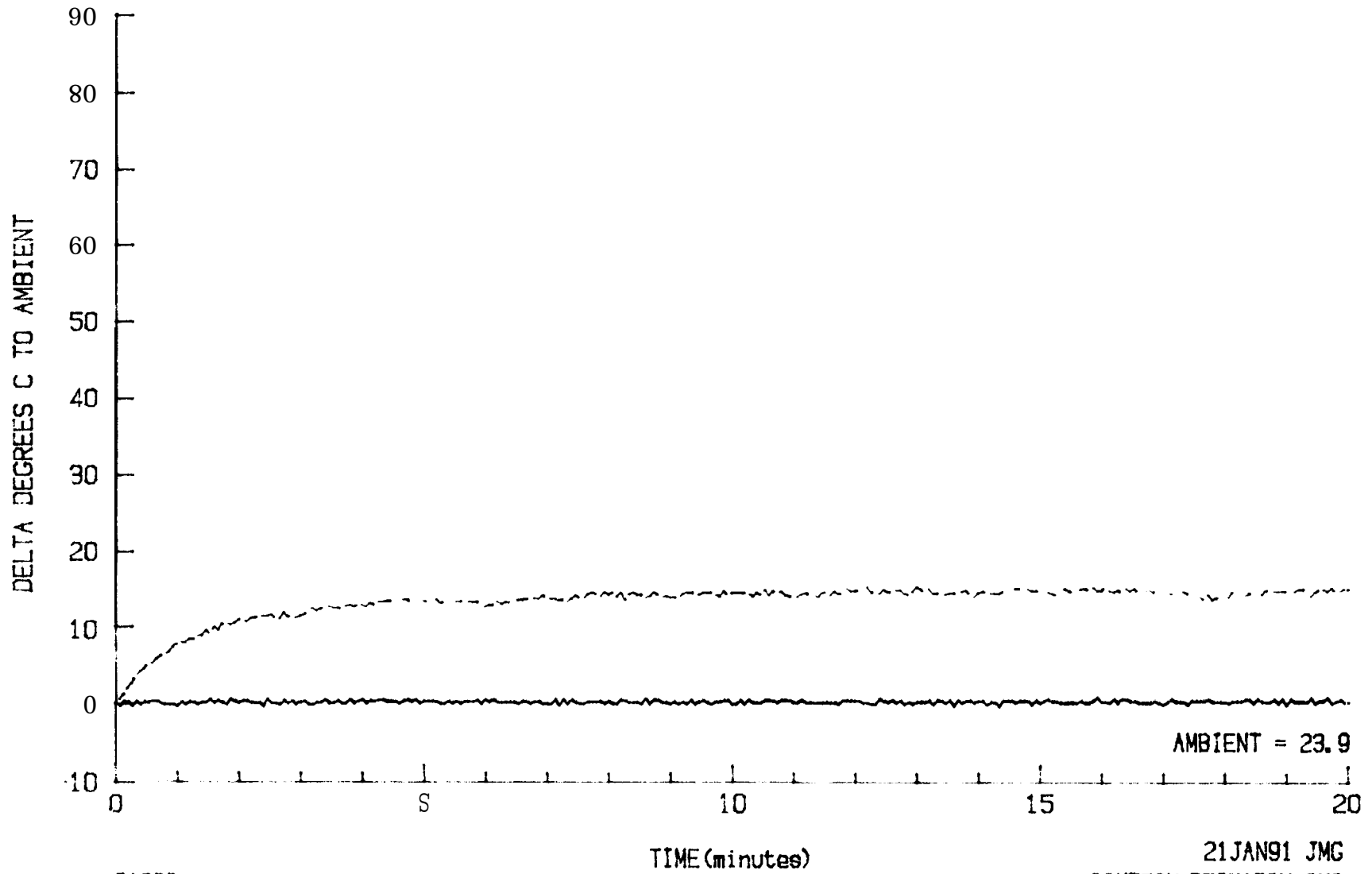


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Figure #6

SAMTEC
BCS150-L-D-TE RETEST
3 AMPS



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Figure # 7

Equipment List

ID#	Last Cal	Next Cal	Equipment Name	Manufacturer	Accuracy	Model #	Serial #	Freq Cal
15	10/18/90	4/18/91	DMM	Hewlett Packard	See specification	3456A	2015A03708	6 months
25	8/9/90	8/9/91	Power Supply	Hewlett Packard	See specification	6002A	2113A-05285	12 months
41			Data Acquisition Unit	Hewlett Packard	N/A	3497A	2011A03436	N/A
144			Plotter	Hewlett Packard	See specification	7470A	2250A-19081	N/A

SAMTEC
BCS150-L-D-TE RETEST
5 AMPS

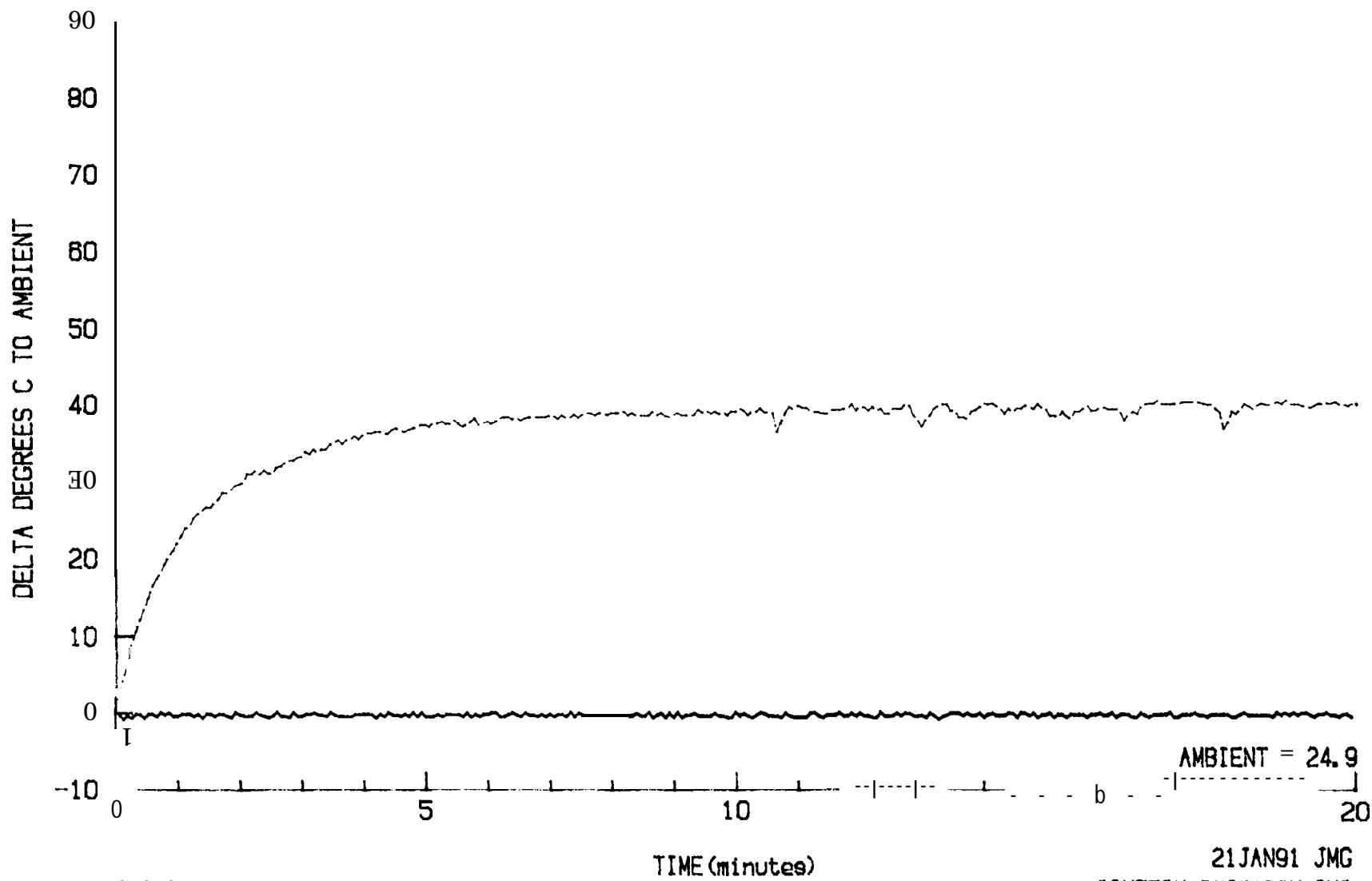


Figure #8

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TIME (minutes)

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AMBIENT = 24.9